

## **REMARKS**

Claims 1 and 4-7 remain pending in the application pursuant to a previous election. Claim 1 has been amended herein. Favorable reconsideration of the application is respectfully requested in view of the amendments and following remarks.

### ***I. Claim Rejections -- 35 U.S.C. § 102(b)***

Claim 1 stands rejected pursuant to 35 U.S.C. § 102(b) as being anticipated by Rayburn, U.S. Patent No. 2,609,049 (Rayburn). As further explained below, the device of Rayburn is not suitable for cutting bonded brittle material substrates. Rather, Rayburn discloses an apparatus for cutting uncured rubber-like materials into strips. The two devices, therefore, are constructed for processing significantly different material types. As a result of this difference, Rayburn lacks several features of the claimed invention.

The device of Rayburn operates by slitting a sheet of material, and then ***twisting*** the material to tear it into strips along the slit. The material processed by Rayburn, therefore, is a rubber-like or deformable material (see, e.g., col. 1, lines 1-28), which differs from a “bonded brittle material substrate” formed from bonding “first and second brittle material substrates”, as recited in claim 1. The Examiner correctly states that the nature of the substrate is not actually part of the claimed device. However, the Examiner’s failure to recognize the differences in the materials being processed has led to the misinterpretation of various elements of Rayburn.

#### ***A. The Device of Rayburn Lacks Two Scribing Means***

In particular, the Examiner considers the knife roll 14 and anvil roll 15 of Rayburn to correspond to the claimed first and second scribing means. The anvil roll 15, however, does not perform a scribing-type operation at all. Rather, the anvil roll 15 generates tension in the material so that the knife roll 14 can form the slit. (See col. 2, lines 20-31; Fig. 2.) As a result, the device of Rayburn generates only one slit in the material. Even if the knife roll arguably is

comparable to a first scribing means, the anvil roll certainly is not a second scribing means.

In the claimed invention, a bonded material is formed of first and second substrates. A cutting device has a first scribing means that generates a first scribing line in the first substrate, and a second cutting device has a ***second scribing means that generates a second scribing line*** in the second substrate. Because the device of Rayburn forms only one slit, Rayburn does not disclose a second scribing means that forms a second scribing line in a second substrate. It follows, therefore, that Rayburn cannot be understood as having second backup and second breaking portions to cooperate with a second scribing means.

***B. The Device of Rayburn Lacks The Backup and Breaking Portions As Claimed***

Furthermore, the Examiner considers the feed rolls 12 of Rayburn to correspond to the claimed first and second backup portions. The feed rolls 12 face and cooperate with each other to feed the material sheet to the knife roll 14 and anvil roll 15. (See col. 1, lines 50-51; col. 2, lines 1-5; Fig. 2.) The feed rolls are upstream, and thus do not face and “back up” the knife roller and anvil roller (which actually face each other).

The Examiner also considers the separating rolls 18 and 19 to correspond to the claimed first and second breaking portions. The separating rolls 18 and 19 cooperate to twist the rubber-like material and tear the material along the single slit. (See col. 3, lines 33-52.) Note that because the material processed in Rayburn is not bonded from two substrates, and there is only one slit (scribing line), the separating rolls 18 and 19 operate differently from the claimed breaking portions. In contrast to the device of Rayburn, the claimed first breaking portion breaks the first substrate along the scribing line formed by the first scribing means. The second breaking portion breaks the second substrate along the

scribing line formed by the second scribing means. This dual-breaking operation is not present in the device of Rayburn.

In this vein, the Examiner states that the term “brittle” is not defined insofar “as there is no relativity to what is considered a brittle material.” The Examiner concludes, therefore, that the device of Rayburn is **capable** of cutting a brittle material. (See Office Action at page 4.) Applicants disagree.

Brittle is a technical term referring to the quality of tending to fracture rather than deform under stress. Brittleness is: “A tendency to fracture without appreciable deformation.” (*Dictionary of Metal Terminology*, MTP, Incorporated 2008.) Brittleness is: “The property of breaking without perceptible warning or without visible deformation.” (*Materials Handbook*, Thirteenth Edition, McGraw, Inc. 1991.) As these representative technical definitions demonstrate, one skilled in the art would understand that a brittle material (like glass) could not be twisted and torn, as taught by Rayburn in the processing of uncured, rubber-like materials. It follows that one skilled in art would not interpret Rayburn in the manner applied by the Examiner.

For at least these reasons, claims 1 and 4-7 are not anticipated by Rayburn, and therefore the rejection of these claims should be withdrawn.

## **II. Claim Rejections -- 35 U.S.C. § 103(a)**

Claim 1 stands rejected pursuant to 35 U.S.C. § 103(a) as being obvious over Masakazu, JP 10-338534 (Masakazu) in view of Fisher, U.S. Patent No. 4,210,052 (Fisher). Claims 4-7 stand rejected as being obvious over Masakazu and Fisher in view of a more tertiary reference. The Examiner states that Masakazu discloses a cutting system having one scribing portion 43, one breaking portion 50, and one backup portion 42 on one side of a substrate. The Examiner recognizes that Masakazu does not disclose a second set of scribing, breaking, and backup portions for scribing and breaking a second substrate bonded opposite the first substrate. The Examiner, however, states that Fisher discloses using a plurality of cutting systems 12, and that it would have been

obvious to combine the references to arrive at the claimed invention. Applicants disagree with the Examiner's analysis.

**A. Fisher Does Not Suggest Duplicating the Structures of Masakazu**

Applicants disagree that a combination of Masakazu and Fisher results in or discloses the claimed invention. In Fisher, multiple cutting systems 12 are provided so as to form multiple longitudinal scoring lines on a glass substrate. In this manner, a transverse scribe 14 may be employed to generate a grid of scoring, so that the substrate can be cut into multiple panels. (See Fig. 1.) Note that all of the scoring lines are formed on the **same side of the substrate**. Accordingly, Fisher does not disclose or suggest to one skilled in the art to duplicate the structures of Masakazu **on the opposite side of a bonded substrate** formed of first and second substrate portions.

Essentially, the Examiner appears to be merely repeating a previous application of Masakazu, that it would have been obvious to provide the structures of Masakazu on both sides of a bonded substrate. (See Office Action dated August 20, 2007.) If one did so, however, the purported breaking and backup portions would not be oppositely aligned as in the claimed invention, but rather the alleged backup portions would oppose each other, and the alleged breaking portions would oppose each other. The advantages of the invention, therefore, would not be achieved. In this vein, the Examiner also states that the claimed breaking portion is comparable to element 50 of Masakazu. It is unclear precisely how the purported breaking portion operates in Masakazu. In the figures, the substrate is shown as moving along a flat table surface accessible only from the top. Given the depiction of the substrate being moved on a flat table surface, one skilled in the art would not modify the device of Masakazu to provide cutting, breaking, and backup portions on both sides of the substrate.

**C. The References Do Not Disclose the Backup Portions As Amended**

The references do not disclose or suggest a backup portion that moves perpendicularly to a respective substrate. Claim 1 previously was amended to recite in part that the first and second cutting devices each have a back up portion which “moves to apply pressure against a surface of the [first/second] substrate”. In the current Office Action, the Examiner states that the purported backup portions of Fisher and Masakazu each “moves (**rotatably**) to apply pressure” against the substrate. (See Office Action at pages 3-4.) Rotational motion of the backup portions was not the intended basis of the previous amendment.

Rather, as stated in the Application, each backup portion is a backup roller which ascends/descends “and presses the surface of the mother bonded substrate 200 with an appropriate pressure.” (See Application at page 22, line 31 to page 23, line 33.) The first backup roller of the first cutting device opposes the second breaking roller on the second cutting device, and vice versa. Thus, each backup roller exhibits **perpendicular movement** relative to each respective substrate to press against the substrate surface to apply backup pressure to oppose the opposite breaking roller. Claim 1 has been amended to clarify this feature, for example, by reciting that each backup portion “moves perpendicularly relative to the surface of the [first/second] substrate to apply pressure against a surface of the [first/second] substrate”. The purported backup rollers of the devices of Rayburn and Masakazu do not exhibit comparable perpendicular motion.

For at least these reasons, independent claim 1 is not obvious over Masakazu in view of Fisher. The tertiary reference applied against the dependent claims does not supply the above deficiencies, and the Examiner does not indicate otherwise. The dependent claims, therefore, are non-obvious for at least the same reasons. Accordingly, the obviousness rejections should be withdrawn.

**III. Conclusion**

Claims 1 and 4-7 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988, reference number YAMAP0962US.

Respectfully submitted,

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